PURPOSE	To provide guidelines for the safe handling and use of cylinders
RESPONSIBILITY	All individuals handling and/or using 6 packs, 12 packs, manifolded, cradled or stand-alone cylinders
AUTHORITY	Plant Manager

Key Considerations

1. Manual rolling and lifting of cylinders is discouraged if other means or available. The use of hand carts, forklifts, pallet systems or similar material-handling devices are strongly encouraged.

2. If a cylinder is falling, DO NOT attempt to catch or stop its fall.

3. Always wear the proper personal protective equipment:

    - Safety Glasses
    - Leather or other suitable gloves
    - Safety Shoes

Handling of Individual Cylinders

1. Manual rolling of cylinders shall be minimized as much as possible to prevent loss of control and possible injury to employees.

    a. An adequate hand cart should be used for moving cylinders distances of greater than 15 feet (4.6 m) for improved efficiency and safety.

    b. Hand carts should be easy to maneuver and designed such that the user has clear vision of the path of movement.

2. Only approved cylinder handling equipment shall be used for the movement of cylinders

    a. Approved cylinder handling equipment includes, but is not limited to the following:

        - Cylinder hand trucks of suitable design, size and strength
        - Portable liquid cylinder hand carts designed specifically for this purpose
        - Pallet jacks of suitable design and strength
        - Fork lifts of suitable capacity for expected loads

3. Be alert and aware of the conditions in the areas in which cylinders are to be moved:
    a. Debris or objects in the path of cylinder movement.
    b. Water, snow, ice or other slippery conditions.
    c. Uneven or irregular surfaces.
    d. Areas with ascending or descending surfaces.
    e. Inadequate aisle width (at least 36 inches is recommended) .
4. Never move cylinders over power cords.
5. Avoid pinch points when positioning cylinders on handling equipment for movement.
6. Ensure that cylinders equipped with provisions for protective caps, have caps in place and tightened.
7. Avoid dropping cylinders or allowing them to strike violently against each other, however, when moving cylinders, if cylinders start to fall, let them fall.
    a. Attempting to catch a falling cylinder may result in personal injury.

Handling Clusters or Portable Banks

1. The movement of clusters or portable cylinder banks requires special considerations because the combined weight of cylinders and framework can be in excess of 2000 lb (909 kg).
2. Whenever possible, use mechanical means, including hoists, forklifts, and cranes to move clusters and portable banks onto vehicles or within facilities.
3. When mechanical means is unavailable or impractical, use two people to move clusters or portable banks.
    a. When manually moving a cluster or portable bank use these precautions to avoid getting trapped by a moving cluster
        - Push, NOT pull
        - Always leave an exit route
4. Never manually move a cluster with damaged wheels. A cluster must have good maneuverability to ensure safe movement.
5. Avoid rolling clusters or portable banks over dock plates or levelers when possible.

Handling Portable Refrigerated Liquid Cylinders

1. The movement of portable refrigerated liquid cylinders requires special considerations because the weight of a full cylinder can be in excess of 800 lb (364 kg).

    a. Excessive or rough handling can damage the liquid cylinder.

2. Use only approved and specifically designed hand carts to move portable liquid cylinders

3. The minor repositioning or movement of short distances of portable refrigerated liquid cylinders is approved without the use of hand carts, such as the movement onto and off of scale equipment.

4. Liquid cylinders equipped with wheels are especially prone to tipping due to a high center of gravity.

    a. Whenever possible, get assistance when moving full liquid cylinders equipped with wheels.

    b. When moving wheeled containers, travel slowly - these containers tend to be top heavy.

    c. Never attempt to stop or catch a falling container. Quickly move clear of the container, and let it fall.

    d. It is permissible for one person to move a wheeled container on a flat surface.

        - The upright, latched handle may be used to push the container in front of the operator.
        - Pushing the container in this manner keeps the container in full view of the operator at all times, lessens back strain from pulling. and encourages employees to move the container slowly and carefully

    e. The movement of a wheeled container up or down a slope, over a rough or bumpy surface or ridge may require two people. Whenever feasible, consider using two people, i.e., a co-worker or customer for this task.

        - As a general rule, the handler should be in an uphill position from the cylinder.
        - Recommendations on handling a wheeled container on a slope:
            - Follow a wheeled container down a slope.
            - Pull a wheeled container up a slope
            - If the container were to tip, it would then fall away from the operator.

    f. Where there is a great difference in height between the dock and the vehicle bed, a forklift may be used when loading or unloading a wheeled container.

        - The liquid container must be properly secured with a strap around the container lifting eye and the forklift mast.

- Do not use a forklift for general liquid container handling duties around the plant floor, yard, etc. If not properly positioned and secured, the container is subject to damage from the forks.

Lifting Cylinders

1. The manual lifting of cylinders shall be avoided whenever possible, however when necessary, specific lifting techniques are to be used to prevent injury to employees.
2. Position the cylinder close to the body and ensure a firm grip.
3. Keep feet at approximately shoulder width.
4. Keep elbows tucked close to the body.
5. Keep back straight and lift using leg strength.
6. Whenever possible, ask for assistance.
7. With pickup trucks, using the tail gate for leverage and using the dock as leverage

Pickup trucks

1. When loading or unloading from a pickup to the ground, use the tailgate for leverage.
2. When loading or unloading from a pickup to the dock, use the dock for leverage.

Practices to Avoid When Handling/Moving Cylinders

1. Use of Electric Magnets
2. Use of Slings (unless you have specified proper slings and SOPs)
3. Use of cylinders as rollers to move other objects (whether full or empty)
4. Lifting a cylinder by the valve protection cap, collar, or other valve protection device
5. Moving a cylinder that is designed to have valve protection without the protection in place.